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25X1X6

SOURCE:

SUBJECT: Supplementary Information to

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1. Manne Siegbahn has had difficulty with diamond wear in the ruling of diffraction gratings. I believe this is due to the coatings he is using. In making a diffraction grating, aluminum is evaporated onto a glass plate, and the rulings are made in the aluminum coating. We have found in our research that the aluminum should be ruled within two weeks after it is evaporated onto the glass or else an oxidized coating will develop which is very hard on the diamonds. I believe that Siegbahn is unaware of this problem and is using plates which have been coated for too long.

2. Siegbahn's gratings are not equal to those produced in the US because he does not carefully control the shape of his grooves by careful shaping of the diamonds. A poorly ruled grating has a low efficiency and a worn diamond also cuts down the resolving power of the grating produced. Siegbahn never attempts to rule over about a four inch grating.

3. My only reasons for believing that the Soviets have no source of gratings are those already reported

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